SECOND SERIES. No. 48.

SEPTEMBER, MDCCCLXIX.

THE ZOOLOGIST:

A Monthly Journal

OF

NATURAL HISTORY,

FOR

RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES AND INSECTS.

No. CCCXXXIX. or S.S. No. 48.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

BIRDSNESTING:

BEING A COMPLETE DESCRIPTION OF THE NESTS AND EGGS OF BIRDS WHICH BREED IN GREAT BRITAIN AND IRELAND.

By EDWARD NEWMAN, F.L.S., F.Z.S.

This work is written expressly for the use of out-of-door naturalists and that better class of schoolboys who take up Natural History as an instructive recreation. Under each species will be found—

1. The English name.
2. The Latin name.
3. The situation in which the nest is to be found.
4. The materials of which the nest is built, together with any particulars of its shape which may assist in determining by what bird it is built.
5. The number and colour of the eggs, describing such variations as are occasionally met with.

In compiling this work the sources whence the author has drawn his information are—

1. His own memoranda.
2. Colonel Montagu's 'Ornithological Dictionary.'
3. Mr. Selby's 'Illustrations of British Ornithology.'
4. Mr. Hewitson's 'Oology.'
5. The 'Zoologist,' not only every volume but every number of which abounds in original and highly important observations on the life-history and distinguishing characters of birds.
6. The 'Letters of Rusticus.'

Price ONE SHILLING, post free.

JOHN VAN VOORST, 1, PATERNOSTER ROW.

Jottings on Snakes: with an Appendix, &c., on Snake Poison and its reputed Antidotes.

By CHARLES HORNE, Esq., B.C.S., F.Z.S.

THE following anecdotes of Snakes are now published inconsequence of the general interest taken in Natural History in all its branches, and especially in snakes. The fashion of the present day is to illustrate the habits and instincts of animals by stories relating to them, and I had at one time intended to prepare a volume or two, in humble imitation of Jesse, Buckland and others, but only relating to India. In the Mutiny of 1857 I lost the notes and collections of sixteen years, and those now set down in the exact words of the narrators are chiefly the collection of the following years.

The Appendix, consisting of extracts relating to snake poison and its reputed antidotes, will be found of great interest, and illustrates, in a remarkable degree, how little we really know either of the action of the venom, or of its antidotes.—*Charles Horne.*

These notes on serpents, which have been recorded by me during a long residence in India, may well be introduced by an account of the power of fascination possessed by the common English snake, and also by the stoat, given me in 1860 by the Rev. H. Bond, and which I will give in his own words.

"I have now no remembrance as to the year in which I noticed the following facts. Walking in an orchard near Tyneham House, in Dorsetshire, I came upon an old adder basking in the sun, with her young around her; she was lying in some grass which had been long cut, and had become smooth and bleached by exposure to the weather. Alarmed by my approach, I distinctly saw the young ones run down the parent's throat: at that time I had never heard of the controversy respecting this fact, otherwise I should have been more anxious to have killed the viper, to further prove the case: as it was, she escaped while I was more interested in the circumstance than in her destruction.

"On another occasion I was walking on the hill-side above West Creed Farm, in Purbeck: the down was scattered with low furze bushes, and my attention was arrested by a cry of distress; it proceeded from a rabbit which was cantering round in a ring, with a halting gait: I watched it for some minutes, but, as the circle became

BRITISH MUSEUM

smaller and the rabbit more agitated, I perceived a stoat turning its head with the rabbit's motion, and fixing its gaze upon it: I struck a blow at the stoat, but missed it; its attention was thus withdrawn, and the rabbit ran away with great vigour in a straight direction.

"On another occasion, walking up the hill above Tyneham towards the sea, I was struck by the shrill cry and fluttering agitation of a common hedgesparrow in a white-thorn bush. Regardless of my presence, its remarkable motions were continued, getting at every hop from bough to bough lower and lower down in the bush: drawing nearer, I saw a common snake coiled up, but having its head erect watching the bird. The moment the snake saw me it glided away, and the hedgesparrow flew off with its usual mode of flight."—*Henry Bond, Vicar of Petherton.*

I need make no apology for recording the foregoing, although I have been told that Mr. Frank Buckland has alluded to one of the stories in one of his popular works. The power of fascination is now, I believe, generally admitted, although I have not seen it previously recorded of the stoat; whilst the fact of the adder swallowing her young and then disgorging is still with reason doubted by many,—myself amongst the number; and, in spite of the clearness with which the tale is told, there is always a chance of optical delusion, and the more so when the act seen, or supposed to be seen, is held to be a matter of course. But now to proceed to our Indian snakes.

Dangers to the Poultry-yard in India, &c.—The following notes were recorded at Bareli, in the N. W. Provinces, in 1854:—

One morning my fowlman came to me bringing a very large *cobra di capella,* nearly four feet in length, which he had just killed in my fowl-house. I had a separate division for the laying hens, and under the door of this there would seem to have been a small crack, through which, when thin, hungry and empty, this snake had squezed himself: having entered, he went to the nests and in some way killed three fine hens, and then swallowed four guinea-fowl's eggs one after another. He now tried to make off, but could not return by the way he had come, the hole being now too small for him, distended as he was by the eggs he had eaten. The fowlman hearing the disturbance next came in, and soon disposed of the snake by a well-aimed blow at his head with a stick. I cut open the reptile, and took out three of the eggs unbroken; I had them set again, but I believe that the fowlman broke them, the rearing of such fowls being held to be unlucky by the natives.

On another occasion, a snake in some way entered my rabbit-house and swallowed three young rabbits, about one-third grown, in succession: he was of about the same size as the last, and was prevented getting away for a similar reason. I cut him open, and found the rabbits in his stomach apparently uninjured, saving that all their bones were crushed soft: the white fur was not even soiled.

In a similar way a snake was stopped in my pigeon-house, it having swallowed a pigeon.

From the above instances it will be seen that snakes do great injury in a poultry-yard; but whether they generally strike the fowls with their fangs, or whether they simply frighten them to death, I cannot say. I have carefully examined at least a score of fowls so killed, and could never find a mark of a bite. The native idea is that they spit poison at their victims, but this is manifestly absurd.

On a fourth occasion, August 18th, 1864, at Banaràs, I took unbroken from the inside of a cobra a guinea-fowl's egg, which had passed downwards eighteen inches.

Now that I am on the subject of snakes the following narrative, which I believe to be correct, may be held to be interesting. During the rains (June 1861) two of my servants were very keenly in search of a *snake-stone*. This is, as is well known, held to be an unfailing antidote to snake-poison, and the popular idea is that it may be found inside the head of any large bull-frog which has been seen to swallow a bird! They saw a very large yellow frog seated at the side of a deep water run, and watched him; a number of common minas (*Acridotheres tristis*, Linn.) were hopping about near quite fearlessly when the frog sprang upon one of them, and caught it in his mouth. He had seized him by the head, and the tail, feet and ends of wings were sticking out. It appears that the frog had been on the bank, and the birds a little below, by the water's edge, and that the former had sprang on the latter from a distance of nearly a yard. They attempted to knock over the frog by throwing a stick at him, but he jumped into the water, which was breast-high, with mud at the bottom, and so escaped them, although they kept watch on him for two days as much as they could, being very anxious to secure the valuable stone.

Here follows an account given me by the late Dr. Cheke, of Banaràs, relative to the habit of the large Indian "ram" frog of catching birds, of which there is also an account in vol. iii., p. 285, of Maclelland's 'Calcutta Journal of Natural History,' whereby the account just given on native testimony is amply confirmed. In the year 1855, in the rains, Dr. Cheke was standing in his verandah with the late Claude Russell, when he observed a great commotion amongst some ten or twelve minas at a little distance. The chattering of the birds and their excited movements drew the observers to the spot, when, to their surprise, all the others flying away, they saw one of the minas (*A. tristis*) detained by a large bull-frog, which had hold of him by the thigh. He struggled hard to escape, but could not: stooping down, Dr. Cheke took hold of the bird and lifted him up, and with him the bull-frog, which refused to let go its hold for a long time; and doubtless had he not been disturbed, or the bird released by his companions, he had made a meal off him.

I have heard of another instance, which I will give in the words of its narrator, T. P. Gudgen, Esq., of the 2nd Dragoon Guards. "In August, 1858, when quartered at Marian, near Lucknow, I saw a large rain or ram frog spring in amongst a number of sparrows that were picking up waifs and strays in the shape of loose grains of rice, &c., near my servant's huts and catch one of them, with which it immediately made off. Some of my servants (who had also witnessed this little incident of frog life) and I immediately gave chase, and in a few seconds one of my syces (grooms) cleverly captured the frog by throwing a horse-cloth over it. On opening the frog's mouth, I found that the sparrow had not wholly disappeared, and that the legs and tail were easily come-at-able; I instantly seized the former with my thumb and finger, and gently withdrew the sparrow from its unique position. On examining the sparrow I found that, with the exception of a slight wetting and ruffling of the feathers, it had suffered little inconvenience from its temporary sojourn in a frog's throat. I may add that, as soon as the sparrow's feathers got dry, it flew away quite briskly."—*T. G.*

But enough of frogs, to which digression I have been led in my search for snake-stones. The *virulence* of snake bites is at times very great, *e. g.*, on the evening of July 2nd, 1864, one of my finest goats was bitten in the tongue by a snake in the grass; she bleated three times very loudly so as to attract notice, but she was lying dead ere any one could reach her; she may, however, have been bitten a short time before we noticed her. Here is a case of cure worthy of record, and given in the words of the medical attendant, Dr. F. Pearson, of Almorah. "On May 30th, 1850, at about 3 P. M., Lieut. S. was bitten in the knuckle of the right thumb by a snake (which proved afterwards to have been a cobra); immediately upon its occurrence,—at least, within five minutes of it,—he came into my room, and I at once (before he spoke) saw that something had happened, for his countenance wore an anxious and alarmed look. He told me that he had seen a large snake coiled up asleep within a few yards of the door, and had seized it by the neck, but unfortunately not sufficiently far forward, for the head had play enough to turn round and bite him. Lieut. S. said he felt positive that it was not a poisonous snake, and consequently refused all treatment, saying that it would be all right presently. He then left for the billiard-room, which was next door: I, feeling uneasy about him, followed a few minutes after. I found him with a cue in his hand; but he was looking pale, and drops of perspiration were standing out on his face and forehead. The thumb also had swollen, and he complained of pain running up the arm: I persuaded him to return with me to the house, immediately upon entering which, he vomited. As no local remedies would at that stage have been of any use,—indeed, I much question if they are of any use at *any* period, for the poison on injection from the fang is *immediately*, in my opinion, intermingled with the circulation,—the case had simply to be dealt with on the principle that the action of the heart must be restrained until the sedative influence of the poison had passed off. Within a short time after the vomiting, Lieut. S. began to feel sleepy; and the pulse, on examination, was found to be lower; it was, therefore, time to commence operations. A dose of sal volatile in whisky was administered, and Lieut. S. was directed to walk quietly up and down the verandah: the time was then about 4 P.M. The desire to sleep, notwithstanding the exercise, was so strong that I was before long obliged myself to walk with him to keep him up to the mark. Later I had to send for two soldiers to support him by each arm; for the limbs were beginning to drag, and the drowsiness was intense: the pulse was at the same time exceedingly low, and the pain and swelling of the arm had increased considerably. From time to time diffusable stimulants were administered, and the walk was quickened into a run whenever the falling state of the pulse demanded it, which was frequently the case, for at times it was scarcely to be felt. At about 1 A.M. the case attained its period of greatest intensity; for at that time it seemed as if neither running nor stimulant would maintain the circulation any longer, and I feared it would end fatally. Shortly afterwards, happily, the pulse began to improve, which improvement was maintained until about 3 A.M., by which time the influence of the poison seemed to have nearly passed away, and I put my patient in his bed, when he at once fell into an uninterrupted sleep for many hours; but it was some weeks before he completely recovered from the bite, for there were a series of small abscesses up the arm, with much low inflammation to be encountered ere health was restored."

I met this officer in excellent health in 1868.

I knew a horse at Sultanpùr, near Banaràs, to be killed by a snake bite. In this case the snake came out from a hole in the wall near the horse's head. Like as monkeys are said to give notice of the whereabouts of tigers, so have I often seen small birds give notice of snakes. Near Banaràs I saw a number of birds busy about a snake, making a great chattering, and he had probably caught one of their number.

On another occasion I watched seven or eight sparrows attacking a small snake, which, although wounded, escaped.

I will now give a curious story in the words of its narrator, Mr. Weber, of the Training School at Segra, near Banaràs, which is quite authentic.

"On the 26th March, 1864, at 10 P.M., when about going to bed, I heard our two little dogs bark very furiously in the garden. The choukedàr (watchman), who was sent to find out what enraged them so much, reported that they were barking at some animal that was hissing like a 'neolà' (*Herpestes malaccensis*), which, however, on account of the darkness, he had not been able to see. On his return with a lanthorn he soon discovered the hissing creature so furiously barked at to be nothing less than a snake, on seeing which he cried, 'Ek bara sámp hai!' (Here's a big snake). Our students and servants no sooner heard this than they all came rushing to the spot, each provided with a 'lathi' (stick): though they could only now and then get a glimpse of the snake, they soon saw, by its raised and active head, what a dangerous adversary it was for the dogs, which were still trying to get hold of it. The people attempted to get the dogs away, so as to be able to get at the snake with their lathis; but both of them were so enraged that they would not by any means be got away: after five to eight minutes more fighting the snake suddenly disappeared, and nobody could tell where it had gone—even the dogs had lost sight of it; but whilst the men and one of the dogs were searching, the other dog, quite in a different direction, rushed suddenly into the garden-hedge, and when with the same quickness he returned, we to our great astonishment saw him bringing the snake in his mouth: without stopping he took it some eight or ten steps towards our verandah, on which I was standing, and then, after having shaken it violently, dashed it on the bare ground, which done, he immediately withdrew backward, so as to give the bystanders an opportunity to make use of their sticks: whether these were still necessary or not I could not find out. In catching the snake in the hedge the dog was less than a minute; and then I heard him scream, as he always does out of sheer pleasure the moment he catches a neola or a rat. The snake proved to be a little more than three feet in length, and two inches behind its head the marks of the dog's teeth could plainly be seen. Three days after this had taken place the dog again encountered a cobra at the edge of our verandah, which was then killed by the servants whom his noise had attracted."

I have heard of one other dog who went about killing snakes, and he seized them in exactly the same manner behind the head. A story relating to this animal is hereinafter told.

I will now give, in the words of the narrator, the Rev. M. A. Sherring, LL.D., of the London Mission, Banaràs, an account of the curious manner in which a snake was captured. "My servant set the rat-trap (which was of ordinary size and shape) one evening, in a small room in the mission-house bungalow. The next morning, on looking in, he saw a large snake of the cobra species angry and savage, and, in addition, in one corner, a musk-rat quite dead: whether the animal died from terror, or from the bite of the reptile, does not appear. It is probable that the snake had pursued the rat into the trap, and that the door then falling had shut them both in. The snake was fully three cubits, or 4½ feet in length, and of proportionate thickness, and filled up a large portion of the trap; it was afterwards killed."

I have already shown how, in some cases, dogs kill snakes (although, in truth, they are oftener killed by them, as all sporting men in India too well know), and I now propose to show how some cats catch and kill snakes, and the use they make of them when caught: the story is given in the words of the narrator, Captain Campbell.

"At Fyzabad (Oudh), in 1863, several of us were assembled one morning in the verandah of the mess-house, when we perceived a snake stealing along just outside: we got a very fine Persian cat, belonging to Mr. Toke, who lived in the mess, and showed her the snake: to our surprise she at once flew at it, and, seizing it just at the back of the head, killed it at once. Not satisfied with this, she evidently thought it a good opportunity of giving her kittens (of which she had three or four) a treat: we watched her taking it to the box in which they were kept, where she commenced tearing it into little bits, and then laid the dainty morsels before her offspring, and in a short time the whole, with the exception of the head, was consumed."

Snakes are often found in bath-rooms, and for a very good reason, viz., the presence of frogs, of which they are particularly fond. The following story illustrates both facts. As we were sitting at dinner, at Mainpurì, on the evening of November 12th, 1865, at about 8 P. M., we heard a strange sound which quite puzzled us. One suggested that it was a fox calling, another that it was some night bird; but one thing was quite clear, that, whatever it might be, it was close to the house. Our spaniel Fanny was lying under the table, so we called her. Fox! Fanny! fox!—upon which she sprang up and rushed outside with a bark; but having reached the spot whence the sound proceeded, she fell back and finally returned to the house. Meanwhile our servants had procured lights, and we found that a snake had seized a frog, who was making these piteous cries. The snake was between three and four feet long, and was said by the natives to be a karait, a most deadly species; and the frog he had caught, but not yet swallowed, was of an average size. The reptile was hanging about a foot and a half out of a drain-hole, and had caught the frog at the bottom of an empty drain-pan placed outside to catch the water. A few smart taps disposed of the snake and rescued the frog, which, however, shortly afterwards died of the poisoned bite he had received.

A curious case of misconception of their digestive powers happened at Banaràs, in 1864, when Captain Steward, of the Queen's Bays, sent me a straightened piece of iron hooping, twelve inches in length, he had taken from the stomach of a cobra, which had been killed near the mess-house: this iron hoop had tied round it at one end a quantity of linen rag, and had been used to wipe out the plates before washing them, and so was highly flavoured with soup, grease, &c. The snake was about two feet and a half in length: how he came not to find out his mistake as he was bolting the rough iron I cannot imagine.

The snakes—cobras in particular—much affect damp places on account of the abundance of food to be found in such localities, and here they meet with their principal enemies, viz., the large water birds and fish-hawks; *e. g.*, I find noted on the 23rd November, 1867, that as I was returning from Etawa to Mainpuri, I saw an adjutant (*Leptoptilos* *argala*, Linn.), which had just caught a snake of about four feet in length: he was picking him up by the middle, and striking both ends against the hard ground with extreme rapidity, and he doubtless pouched him in a few seconds.

I have found the remains of snakes in the gigantic nests of Haliætus leucoryphus (*Pallas*), the ringtailed sea-eagle. A native of Rasèma, a village near Mainpuri, who was a great sportsman, described this bird as pouncing on the snake, pecking violently at its head, thus killing it, and then either deliberately eating it, or carrying it off to its young,—which last fact is confirmed by my previous observation. Another enemy is the serpent-eagle (*Circaetus Gallicus*), which is described in 'Jerdon's Birds.' He says, "My Meer shikaree (chief hunter) has seen them on the ground with their claws in the snake's head, its body coiled round the bird's wings, in which state the herd-boys sometimes kill them. The Yerklees say it has a figure of God's churk-ram under each wing, by which it prevents the snake going forward." I myself have not been fortunate enough to see it catching a snake.

And now a few words regarding the slough of the snake. This is often cast in curious places: a favourite resort near Azimghur, N.W.P., was a grove of trees which had been cut in, and so had thrown out many fine twigs from the stem: at about four or five feet from the ground, and amongst these rough twigs, which were very near to each other, I have constantly found the cast skins. Amongst rough grass and bushes is, however, the most common situation: sometimes they select closed venetian blinds. Here is a case. On the 10th October, 1867, as I got up in the morning, I saw something white in the venetians, which opened to the verandah: this I found to be the slough of a snake nearly four feet in length; I put it by, wondering what could have brought the snake to cast it in such a place. Next day a lady, an old resident, told me to be careful, as the snake would be sure to hang about, but I thought no more of it. On the 24th October I was sitting most of the day drawing in the reception-room, and *felt* a queer smell, but thought it might proceed from my subject, viz., a wasp's nest: I sat all day, the smell getting worse. Next day it was unbearable, and great search was made, and the annoyance was held to proceed from outside: the glazed door was opened, when looking up there was my snake caught in the door by the middle, quite dead of course, and where he had been hanging at least two days. These doors are over nine feet high, and hence its not having been previously seen; and thus the snake hung too long as well as too high.

The sloughs, or snake-skins, are very much used by birds for nest building; I have seen portions of them in most hawks' nests, more especially in that of the ringtailed fish-eagle; whilst the mynas (*Acridotheres*) all use them extensively. The charming little nectarine (*Aractnechthra asiatica*, Linn.) uses little bits of them in his nest of spider's web; and four or five other species of small birds employ them largely. The villagers hold the ashes of the slough to be a charm, and an antidote for rheumatism, when rubbed up with oil; but I am not aware that any virtue really resides in them, although doubtless the friction and the oil may do good.

It is not often that natives of India take an interest in Natural History, and hence I know I shall be excused for introducing the following correspondence relative to the snakes (Cobras) feeding on fish and snails. Here it is, as it appeared in a letter addressed to the Editor of the 'Delhi Gazette,' with others to myself:—

Curious habit of the Cobra.—"I shall feel obliged by your kindly inserting the following, and also glad of any additional information on the subject which may be afforded by your readers. I have never heard it noticed before, that the black snake, or Cobra-di-capello, takes to the water and catches fish like a common water snake. Last year, when standing on the bank of the little stream at the bottom of my garden, during the rains, I saw on a rock at the other side two cobras, which appeared to be meditating crossing the river at a narrow place, where however the current was very strong, and they at last plunged boldly in, swimming fast towards the near side, whence they emerged, one having a small fish three or four inches long in his mouth, and quickly disappeared in the willow jungle, which covers both banks. About a month ago, when walking with Captain Battye and Lieut. Young, of this regiment, we saw a black snake, whose body, partly hidden amongst stones, was poised in an erect position, with its head only above water, evidently on the look-out for small fish and frogs: I shot it with a pea-rifle, and though both my friends were inclined to doubt the fact of its being a cobra, the matter was soon settled to our satisfaction by comparing it with a cobra fully six feet in length, which Lieut. Young's bull-dog had that very morning killed in my compound (the second killed by the same dog within a few days), when it agreed in every particular, not forgetting the *moveable fangs* so distinctive of this species. Again: yesterday evening, when fishing for *sowl* or *murrell* fish, as they are called on the Bombay side, my bait, a fish about three inches long, was twice taken by black snakes having the same appearance; but I did not succeed in landing either, as they were not fairly hooked."—*Lindsay F. Dickson, Assistant-Surgeon; Meywar Bheel Corps, Kherwarrah Rajpootanah, 2nd January*, 1867.

This interesting letter called forth the following:—

"Sir,—I am happy to be able to record, for the information of Mr. L. F. Dickson, the following additional information respecting the curious instinctive habit of a cobra, to which I was an eye-witness.

"When residing in Bengal, in the vicinity of Calcutta, I observed near a tank in an extensive paddy-field called Nello, now in the jurisdiction of the Howrah Zilla, a black snake catching hold of a snail with its mouth and striking it hard against another, thus anatomizing its victims completely and devouring the contents of the shells. The reptile is hence called in Bengal "Gaun bhanga kaota" (snail-breaking black snake). It is very venemous and is characterized for its great fury against man and beast, so much so that it would sometimes attack from a safe distance an innocent passer-by, even without any symptoms of aggression:* it generally moves about (in Bengal) at night in the hot season, and has sometimes a large diamond."—*Raj Chandra Sandel; Benares, 15th January*, 1869.

I will now give one cutting from a paper, out of many, relative to cobra bites in Bengal: it is from the 'Bengallì,' a native paper published in English, under date April 13, 1867:—

"A contemporary gives the following account of the case of a woman who had been bitten by a cobra. A grown-up woman, of the jula caste, passing by a drain or *khal* with a basket full of fishes upon her head, all of a sudden fell senseless on the ground, and strange to say immediately collapsed: instantaneous measures were adopted by the doctors (of whom there were more than one I believe), and other gentlemen present, to bring her to her senses, but to no effect, the disease not being at that time recognized. Just at this time the village chowkedar (watchman), who happened to pass by that way, examined her, jumped into the khal (drain), brought some leaves from under the bushes that grew there, wrung their juice, and administered i down the throat of the woman; and when that was found to be impracticable (as the life was almost extinct) down the nostrils and cavities of the ears. This was continued for some moments, after which the woman appeared to move slightly, and then in a few minutes more perfectly recovered. She picked up the fishes that lay scattered about, felt abashed at the sight of so many gentlemen attending on her, and bowed away. After great importunities, the chowkedar told them it was the juice of the plant *golghosh* or *holkhosa* that he had used: it is a small plant, the flowers of which are used by the Bengalees in the worship of Saruswati, and found in cornfields."

---

* Speaking of the Jaracára serpent, Mr. Bates says—"In conversing on the subject of Jaracáras as we walked onwards, every one of the party was ready to swear that this snake attacks man without provocation, leaping towards him from a considerable distance when he approaches."—'Amazons,' cap. xi., p. 379.

So much for a newspaper story. After reading the letter of Raj Chandra Sandel I corresponded with him on the subject, and I subjoin his letters *in extenso*, and in the very words of the writer, who had evidently received a good English education in Calcutta: in reading them, it should be borne in mind that the writer is a Bengalee of good family.

"Sir,—I consider myself very fortunate in being introduced to you through the medium of a newspaper: by this event I expect much to learn from you, knowing you to be a gentleman of considerable information, and a lover of truth and science. I beg to say that I shall try to send you shortly the very limited doings of a very few animals that I have been able to notice, when I was residing in a pretty jungly village called Bellore, about four miles distant from Calcutta, on the opposite bank of the river Hoogly. I am sorry, however, I cannot give you the exact date of the occurrence: I think it was in 1856. But to tell you the truth, it is not an uncommon sight in the swampy villages around the metropolis, especially in those which are situate in the south of Calcutta. I wonder how this broad fact escaped your notice! The snails I allude to are freshwater ones, which are generally seen in hot weather sticking to the side of stairs of masonry ghats, or to small logs of wood thrown longitudinally on the banks of ponds, for the convenience of men in bathing and fetching water. I always saw them on the margin of tanks of sandy beds: they are black when alive, and are sold in the bazaars in villages. The lower order of people eat them: its broth, I am told, would cure insanity. The pundits in Bengal use these shells as snuff-boxes: they are also sold at Benares. I saw another kind of snail in Bengal, which are smaller, and which crawl on dry land: the colour of its shell, which is somewhat flat, is rather white. The snail under notice is called here *ghoongha.** My statement as to a cobra having sometimes a diamond,—which is a popular notion,—will no doubt be ridiculed by many; I have here the authority of an ex-student of the Medical College of Calcutta, who on referrence remarked, that as this poisonous reptile lives a long life, the effect of time matures its carbon to a diamond. People say it sometimes emits light, which has perhaps led them to believe this: it is, however, a fact that a cobra would live as much as 100 years. I shall write again about it in my next; but, in the meanwhile, I beg to be allowed to say that there are several varieties of Cobra-di-capello, and the black snake is only one of them."—*Raj Chandra Sandel; Benares, January* 28, 1867.

"With reference to my letter of the 28th ult., and in reply to your favour of the 11th inst., I beg to write by this opportunity again:—

"The village in which I was residing in Bengal six years ago has, as I stated, a jungly aspect. The chief animals which I had the opportunity of seeing when living there, were snakes and frogs of different kinds, rats, bats, monkeys, jackals, otters, and several kinds of birds and numerous insects. The Cobra-di-capello has four varieties. The black snake, which is said to be the male reptile, is called *kaotá;* the other three, which are said to be females, are *khya, khoris,* and *gokhoors.* They are all equally poisonous; but each is characterised by a different feature. The black snake is, therefore, contrasted with the *khya,* which is white; whilst the others are holding intermediate positions. The great terror which the poisonous serpents have spread in Bengal has originated from time immemorial the *Munshá pujah,* or the worship of the Serpent Goddess, which is observed annually in the Bengali month of Bhadoe†, or when the rains are very excessive, and owing to which the cobra is obliged to take shelter, from the submerged state of the country around, in the burrows made in the dwelling-houses by the mice. The popular notion in Bengal is, that in every house there is a "tutelary" cobra, which has an attachment for the family, and which cannot be destroyed or expelled without the risk of a great calamity. This supposed serpent is called the "*bastoo*" serpent, *i. e.* belonging to the house.

"I once saw a man play with a black snake with a small stick, the sight of which crumpled the reptile, which was strutting with its fearful hood. This stick was probably made from the branch of a tree called in Bengal "Isar mool:" it is a wonderful medicine for snake bite. Native bydas (physicians) are in the habit of extracting poison from the fangs of the cobra, which they use for medicinal purposes. There is a class of men in Bengal called *badas*, whose profession is to catch snakes: these men, who profess to be well versed in serpent-catching-incantations, can trace them in cavities in fields, which they excavate and make them captives. Peacocks, I am told, are great enemies of serpents. There is a snake in Bengal which is generally five or six feet long: it is very timid, but very cunning; it is not venomous, but very dangerous to milch cows. It contrives to bind with its long tail the hind legs of a cow, and applies itself to one of its teats, and sucks the milk like an infant. This teat is always rendered milkless afterwards: from it can no milk flow.

---

* The common Indian term for a shell.

† July—August.

"There is a serpent, which is very small, beautiful and harmless, with which little boys play by catching it and throwing it against each other. One of these snakes I saw (in July, 1855) being devoured by a large yellow (golden) frog, which here (N. W. P.), as well as in Bengal, makes its appearance in the commencement of the rainy season, when they, in a group, get on the shore of a tank and make awful noises, to the great distress of the reposer at night.

"I not only observed the strange habit of a frog in devouring the reptile, but also saw it catching hold of a young one of a bird which is here called *desí myuá:* I don't remember the date. I was unable, however, to observe this circumstance closely, as the little playful boys, observing it, were throwing brickbats at it to emancipate the poor bird, before I happened to approach.

"There is another kind of frog in Bengal, which generally inhabits the trees: it is slender in form, and makes an extraordinary long leap. It generally came across my way at night, when I had been at my study before a light, when it was raining heavily.

"There is a peculiar kind of rat in Bengal which climbs up trees, and devours the fruits thereof: their leaps are long enough, and they eat up the kernel of a cocoa-nut hanging down from the palm; they make a hole at the uppermost part of the fruit and consume its contents, and they are very nimble.

"Jackals are very cunning: I saw them carry away puppies from the bitch's lap by a strange manœuvre, which is worthy of notice. It was at dusk, when a bitch lay with her little ones in the corner of a ruined hut: a jackal contrived, by making its appearance as if to tempt the animal to pursue him, when from behind came his companions who were in wait secretly, and bolted away with the poor puppies thus left unguarded by their mother.

"Otters are very useful to fishermen in Bengal, who have them for catching fish in rivers as well as in ponds; but as the animals always came down to fish at dead of night in deep ponds, I had no chance of seeing them dive.

"At Burrah-nuggur, a village about six miles north of Calcutta, I saw in a summer month, on a large tree, numerous bats, which were swinging with their heads downwards, and repassing guava seeds from their mouths to the ground below. I was informed that these animals have mouths only, which serve the purposes of consuming as well as for repassing.*—*Raj Chandra Sandel; Benares, February* 25, 1867.

These letters show the Babù to be a keen observer, whilst they contain valuable matter: would that more natives would so observe, for it is very interesting to have notes of native ideas and belief *recorded by natives.* The subject is tempting; but I will not swell this paper to greater length. The native belief regarding the flying foxes is very curious, and I cannot conceive whence it is derived; for natives handle these animals, and even kill them for their fat, which they esteem medicinally.

The natives call the thick yellow snake found in the N.W. Provinces (Cylindrophis Johnii ?) the double-headed snake: it is perfectly harmless, and is often kept by gardeners and others in earthen vessels. At times a scar is made at the tail end, and two minute marks for eyes added, when it is at first difficult to say which is the head and which the tail, the eyes being very small. I extract the following regarding this snake from my note-book:—"To-day (Oct. 12, 1867), about noon, a snake commonly known by the above name came up the road quietly to my front door; I went out, and found him basking in the sun; he was very thick, cylindrical, and covered with fine yellow scales. Both ends were of about the same size and shape, and he was very sluggish in his movements. I was told he was quite harmless. Gaindooa, my gardener, said that he once kept one for my predecessor,

---

* "Mr. Blyth states that it ejects by the mouth the large seeds of any fruit that it has eaten."—Jerdon, 'Indian Birds,' vol. i., p. 345. May not this have led to the idea of Raj Chandra Sandel about the bats doing much the same—and may they not do so?—*C. H.*

Mr. Henderson, and that the reptile had swallowed seven rats in one day! From what I afterwards saw I can almost believe it. He added that after the Dewalì (the festival of Lights, about six days hence) his head would become his tail, or that rather his tail end would come into work as a mouth. He was put into a round earthen pot (gharrah), and live rats were at once ordered for him. On the first rat being put into the vessel, the mouth being incautiously left open, it jumped out, when my dog Fanny, who was watching the operation with great interest, rapidly accounted for it: another was brought and put in, and the mouth closed; a little rustle was heard, and when we reopened the gharrah we found that the snake had encircled the rat in a threefold coil, and completely crushed him. The reptile had then turned his head, and seizing the rat by the nose began to draw him in: his jaws, which at first had looked so small, gradually distended as the eyes, ears, fore-feet, and ultimately the whole rat, disappeared. Dr. Tyler, who was present, having frightened the snake, he disgorged the rat with the greatest apparent ease; but he took it down again, when he was returned with it into the earthen vessel. He next swallowed the other rat which Fanny had killed, having first similarly encircled it; and I firmly believe he could have swallowed three or four more. The eyes were extremely small, and in life, unless this snake possesses a wonderful power of fascination, it could never catch a live rat: the body, of course, swelled to fully twice its original size after the meal, and they are said to be able to go without food for months, although, when food is taken, it does not take long to digest. In this they resemble the boa family, as also they appear to do in many other respects. What astonished me more than anything else, was the ease with which the food was disgorged: this was, however, greatly facilitated by the abundant flow of saliva, with which the disgorged animal was so covered as to be quite slippery; whilst every bone in his body appeared to have been completely crushed in the fearful squeezing he had undergone ere being swallowed.

"I had intended making notes on this snake, but after lying in a dormant state digesting his food for five days he became active, and one night poked a hole through the cloth tied over the mouth of the vessel, and so escaped."

Relative to the power snakes have of disgorging their prey, I quote the following, under date September 11th, 1867, from my notebook:—

"Just now my man brought me in a young fully-grown myna, larger than a thrush, which he had seen disgorged by a large black snake, after it had been more than half swallowed, *i. e.*, till mid-wing commencing from the head, or about five inches. The snake was in a 'kujur,' or date palm-tree; and the horsekeepers seeing it began to throw brickbats at it: upon one hitting it, it threw up the bird, which bore evident traces of having gone down head foremost, and relative to the extent to which he had been pouched there could be no doubt. I was not hitherto aware that a snake could thus disgorge. The said snake then went into the crown of the tree, where there were some fifty or sixty weaver-birds' nests, and where the rascal will find fine feeding. I do not know of what species the snake may have been, but it was probably a '*daman*,' which often climbs trees, and is at home amongst the boughs."

The natives have generally a great antipathy to snakes, believing nearly every one of them to be venomous; yet the appearance of a cobra in a hut is in some parts held, as before noted, a happy augury. Some of the large snakes—one in particular, the "daman," before alluded to—of the N. W. Province, which I believe to be harmless, attain a great size (I have found them eight to eleven feet in length), and live chiefly in trees, feeding, I presume, on birds; and it is curious to see these large creatures going from one tree to another without descending.

But I will bring these desultory jottings on Indian snakes to an end with the story of my first introduction to them at Midnapùr, in Bengal, in 1844.

I had heard that one might take up the worst snake, if you suddenly seized the tip of its tail with your left hand, and, passing the right hand up smartly round the body, arrest it just behind the head, there holding it firmly. It was in 1844, when I was living at Midnapùr, that a snake-charmer came with several cobras, which he set dancing. I remarked, "Of course all the fangs and poison-glands are removed." He said they were not. There were some sixty or seventy people present, when I went up, snapped up the largest snake by the tail with my left hand, passed my right hand up some four feet, and held him tightly just behind the head. I then let go of the tail, when the reptile twisted itself round my arm and body. I next took out my penknife from my waistcoat-pocket with my left hand, and, opening it with my teeth, proceeded to show how the fangs were gone, when, to my horror, I found fangs, poison-glands, and all complete!! A kind of cold shudder went through me, as, with the utmost *sang-froid* I could muster, I called for scissors, wherewith I cut off the fangs by the roots ere I released the snake. It is the first and last snake I ever so took up; and I look upon the section of one of the fangs (which I now possess, set up as a microscopical object) with a feeling of thankfulness. The snake-charmer fell at my feet, and acknowledged me his equal, and as knowing all things and possessed of all power. I ordered of him three or four fine cobras, meaning to keep them, and prepared a box for them: they came, and that very evening all our servants gave notice to quit. In the night the snakes mysteriously deceased in their box; no inquiries were made; no servants left;—but I have never since attempted to keep venomous reptiles.

C. HORNE.

London, April 14th, 1869.

Collected Observations on British Reptiles.

By EDWARD NEWMAN.

(Continued from Zool. S. S. 1719).

THE TOAD (*Bufo vulgaris*).

Rana Bufo, *Linneus*, *Systema Naturæ*, vol. i., p 252.

Bufo vulgaris, *Dumeril* and *Bibron*, vol. viii., p. 671. *Bell*, *History of British Reptiles*, p. 115; *Clermont*, *Quadrupeds and Reptiles of Europe*, p. 252.

The toad has no teeth either on the maxillary bone or the palate: the tongue is rounded at the tip, without any indication of a notch; the nose is blunt and rounded; the entire surface of the body is covered with a dry skin, very harsh and unpleasant to touch—a character it derives from the presence of numerous warts, which are large and placed irregularly on the back, smaller and more regular on the belly. The eyes of the toad are prominent and remarkably bright; they look like small gold rings, each with a black centre or pupil; each eye is susceptible of being turned separately but very slightly, at the will of the animal, in any direction required—a feat that the chameleon performs to admiration, and one that has been supposed peculiar to that extraordinary animal. The exceeding brilliancy of the toad's eye no doubt induced the most appropriate speculation that the lark and toad had exchanged eyes; and also another very favourite idea, to which the same unapproachable poet gave expression in the passage—

> "Sweet are the uses of adversity
> Which, like the toad, ugly and venomous,
> Wears yet a precious jewel in its head."

Pennant, in his Zoology, says—"The toad was believed to have a stone in its head, fraught with great virtues, medical and magical. It was distinguished by the name of the reptile, and called the toad-stone, Bufonites, Crapaudine, Krottenstein, &c.; but all its fancied powers vanished on the discovery of its being nothing but the fossil-tooth of the sea-wolf, or some other flat-toothed fish not infrequent in our island, as well as in several other countries." The editor of 'Popular Antiquities,' pursuing the subject farther, has added two interesting notes from the same author: he says, "These and other grinding teeth (alluding to the teeth of the sea-wolf) are often found fossil, and in that state called Bufonites or toad-stones: they were formerly esteemed for their imaginary virtues, and were set in gold and worn as rings."—(*Zoology*, vol. ii., p. 154). Thus the true toad-stone turns out to be something else, a something which retains none of its properties now that its supposed virtues have evaporated with the discovery; but the brilliant eye which gave rise to the idea remains as beautiful as ever. It is rather curious to find an author maintaining, with somewhat comic gravity, that "the people of England made superstitious uses of a real jewel that always could be found in a toad's head." Behind each eye is a large swelling or protuberance. The fore legs are short, and the toes, which are four in number, are turned inwards: they are slightly connected by a membrane at the base. The hind legs are considerably longer than the fore legs, and have five toes, all of which are connected by a membrane at the base; the fourth toe is much the longest, the third next in length, then the fifth, then the second, and the first is the shortest. Lord Clermont speaks of the rudiment of a sixth toe on the hind foot; but, having thoroughly examined the small wart-like process to which his lordship alludes, I find myself quite unable to take this view of its homology. I must also, although with considerable hesitation, dissent from Mr. Bell's *generic character*, "hind feet of moderate length, toes not webbed;" since in every instance that has come under my notice, the hind toes are most evidently webbed, although not to the extremities of the toes. The colour of the toad is dull brown on the back, the tubercles having a slight tinge of brick-red; the belly and under parts of the thighs are dingy white, generally spotted irregularly and sparingly with black.

Toads vary considerably in size, and generally in accordance with age and sex; the oldest specimens are the largest, and females are almost invariably larger than males of the same age: the average length of a full-grown toad is 3¼ inches, but some specimens greatly exceed this size, and there are varieties or races inhabiting Guernsey and the Morea that are vastly superior to our English toads in magnitude: I have possessed for three years a living Guernsey toad as large as a moderate sized tea-saucer.

The food of toads seems to consist of all living animals that are susceptible of being swallowed, but I have never seen a toad eat any vegetable matter or any dead animal. Insects are the favourite food; worms are occasionally eaten, and slugs more rarely: the oblong pellets of excrement we so often find on our gravel-paths are deposited by toads, and these prove that the principal food has been the night-wandering beetles,—the elytra, thoracic case, and other hard parts of which have passed undigested.

Mr. Bell, in his invaluable work on British Reptiles, gives the following account of the toad's manner of feeding. "The toad, when about to feed, remains motionless with its eyes turned directly forwards upon the object, and the head a little inclined towards it; and in this attitude it remains until the insect moves; when by a stroke like lightning the tongue is thrown forward upon the victim, which is instantly drawn into the mouth. So rapid is this movement that it requires some little practice, as well as close observation, to distinguish the different motions of the tongue. This organ is constructed as in the frog, and the surface being imbued with a viscid mucous secretion, the insect is secured by its adhesive quality. When the prey is taken it is slightly pressed by the margins of the jaw; but as this seldom kills it, unless it be a soft tender larva, it is generally swallowed alive; and I have often seen the muscles of the toad's sides twitch in a very curious manner, from the tickling movements of a hard coleopterous insect in the stomach. It will also take earth-worms of a considerable size, and it is a very curious sight to watch the manner in which the powerful and writhing worm is secured. If the toad happen to take it by the middle, the extremities of the worm are twined with great force and activity around the muzzle in every direction, in its attempts to escape; but the toad pushes one portion after another into its mouth by means of the fore feet, until it all disappears, when it is swallowed whole."—*Reptiles*, p. 118.

I think in quoting this graphic passage with entire confidence, as emanating from so high an authority, I am bound to add that I have never been able to verify the description of the toad's tongue. I have never found any indication of the presence of the "viscid mucous secretion" of which Mr. Bell speaks, and the object of the rapid movement which Mr. Bell describes seems very similar to that of a dog snapping at a fly. The case is somewhat different with a worm, but under any circumstances there is a spasmodic or convulsive twitching of the toes during the act of feeding that is very peculiar, and which has rarely been noticed by toad-biographers.

No entomologist can possibly have passed over unnoticed the array of toads that collect round the foot of an often-sugared tree-trunk: there they sit waiting with the most exemplary patience for the Noctuæ, intoxicated with the judiciously prepared mixture, to drop helplessly to the ground, when their fate is sealed as effectually as in the pill-box of the collector. The moth is seized at once, and being occasionally too large to swallow with perfect facility and rapidity, is stuffed into the mouth with the hands. But perhaps the apiarian has a greater right than the entomologist to complain of the voracity of the toad, for it is well known to devour the honey bee when it has the chance. A friend of mine tells me that a stock of bees was observed to grow weaker day by day, until at last it became so pauperized that the hive was removed, and the bees turned out to shift for themselves: nothing amiss was detected in the interior of the hive. A second stock shortly afterwards exhibited similar symptoms of depopulation: a suspicion was now entertained that some nocturnal depredator entered the hive at night and devoured the bees. About two hours after dark the hive was visited, with a view to an inspection of the interior; but on arriving at the spot with a lanthorn, the owner found nothing but a large toad squatted on the alighting board, and looking about him with bright and animated eyes. Presently a night-roving bee returned home; there was a sudden movement on the part of the toad, and the bee vanished. A long interval of patient watching ensued, when a second bee came home, a similar movement of the toad followed, and the bee again vanished; but the light of the lanthorn being this time thrown full on the toad, he was distinctly observed to swallow. The toad was caught and killed, and eight still living bees were taken from his stomach. I attempt no explanation of the mode in which the toad attained his station at the entrance of the hive, or what antidote he possessed to the poison so likely to be conveyed by the stings of the bees; all I can do is to vouch for the veracity of my informant, which I do without the slightest hesitation; and it is not a little singular that this taste for bees on the part of toads should have been noticed two hundred years ago in a quaint work intituled 'Profit and Pleasure united, or the Husbandman's Magazine.' In this strange but most interesting publication, all the enemies of the hive bee are enumerated, and the toad is placed at the head of the list.

A question has been raised as to the possibility of the toads attaining so elevated a position at the alighting board of a bee-hive, but those who have studied the habits of the toad well know that this is very practicable. Mr. Weir has stated in the 'Zoologist' that he once observed a toad perched sedately on the top of an open parlour door, and he seemed to be viewing the human transactions going on beneath him with as much interest as Cowper's philosophic Jackdaw; and I have often observed in greenhouses a toad squatting on the highest possible point, looking to admiration the boast of Alexander Selkirk:—

> "I am monarch of all I survey."

Insects are, however, amply avenged on the toad for the incessant warfare he wages against them; and they inflict on him the most horrible of all deaths, that of being eaten by worms like King Herod of old. Every now and then you may meet with the distended and dried skin of a toad, concealing and containing absolutely nothing but bones and the few viscera that are absolutely necessary to maintain existence in its most enfeebled condition. The flesh has been slowly eaten away by the maggots of the Musca vomitoria, or some allied dipteron: many species of Musca and Anthomyia assist in this horrible task.

There is no link in the chain of evidence on this subject missing; we have the most unquestionable accounts of the fly intruding on the privacy of the toad in his retreat. "It is singular," says a writer in Loudon's 'Magazine of Natural History,' "that the blue-bottle fly should persecute the toad in his retreat from the mid-day sun, apparently mistaking the ill-favoured creature for some filthy substance which would serve as a pabulum for its young;" the writer evidently hinting at a fact in natural history which he was quite unprepared to believe. Next we have the following note by Mr. Charnock in the 'Zoologist' for 1845, at p. 1138.

"I observed a toad, about a week ago, in the evening after a shower of rain, crawling across a public road, which apparently had a white mark or patch across its back. On examining it closely, I found this occasioned by a large quantity of the eggs of one of the flesh flies being deposited on its back. Is this one of the means employed to keep these reptiles in check? I have never heard of it before: the toad seemed quite lively and in no way injured."

And again, at page 1215 in the volume for 1846, we have the following details from the pen of an excellent observer, Mr. Chennell, of Guildford:—

"Last summer, 1845, having noticed a great quantity of dead toads, I was induced to inquire the cause of their death. On the 23rd of August I selected one that seemed unusually inactive: all that I could then see of the disease, after a careful examination, was that one nostril was a little enlarged. I placed the toad in a box inaccessible to small insects, and on opening the box three days afterwards I found the frontal sinuses and fleshy parts of the head devoured by larvæ of the flesh fly: after eating the whole of the toad, excepting the skin and bones, they changed into the chrysalis state. I did not count the larvæ, but I should say they numbered a hundred."

Little as we find published on this subject, there is no fact in natural history more clearly established than this of the Diptera ovipositing on the bodies of various species of toads and frogs, with a view to making the softer parts of the body form a pabulum for the future larvæ. One of these has been so thoroughly studied in Australia, and is in itself so interesting, that I think it unnecessary to make any apology for transferring to the 'Zoologist' an extract from Mr. Krefft's paper, published in the 'Transactions of the Entomological Society of New South Wales.'

"In the course of my inquiries," says Mr. Krefft, "into the batrachian fauna of Australia, I have frequently captured frogs infested with a number of parasites seeming to be the larvæ of dipterous insects; they are generally found between the skin and flesh, just behind the tympanum, but in cases where three or four exist upon a single individual they reach as far back as the anus: these larvæ may be taken for glands at first sight, but closer examination soon reveals a small opening, and a gentle pressure will quickly exhume the yellow parasite. In all cases where the larva was forcibly ejected, the death of the frog, whether large or small, was caused thereby, and in fact these creatures generally die after the larvæ have worked their way out. * * * It appears some frogs are more infested with this parasite than others: it is most common upon Cystignathus sydneyensis in this neighbourhood,—a remarkable fact, as this species is the smallest of the tribe and frequents the water much. At Shoalhaven I found Pseudophrine Bibronii much infested, some specimens not more than half an inch long in the body, having two to four larvæ to support; and whenever I found Hyla citropus I have *always* observed the larvæ of a fly upon them. I believe that the insect living upon Hyla citropus will prove to be different from the present species, as its larva varies in structure considerably from all others."—*Trans. Ent. Soc. New South Wales,* vol. i., p. 100.

These frog parasites appear to be œstridious, while those on our English toads usually belong to the genera Musca and Anthomyia.

While on the subject of toad-poisons in a former chapter, I unfortunately omitted a paragraph which I now supply: I am quite unable to say to what particular species of toad the passage refers, but there appears to be the strongest reason for believing that the poison in question is identical with the celebrated "wourali," of which so much has been written by the naturalist Waterton under the impression that the wourali was a plant. "The most deadly poison known to be used by the slaves in Brazil is that of the toad. The skin of this reptile contains glands which secrete in abundance a milky glutinous fluid when the toad is put to pain or irritation: this is scraped off and dried: it produces incurable obstruction and enlargement of the liver, and a speedy death. Some beat the toad with rods to make it secrete the venom, others place the animal in an earthen vessel over a slow fire."—*R. de Gambleton Daunt in the Dublin Medical Press for September* 25, 1861.

It is interesting to observe that while the ignorant of all ages have believed in the existence of this toad-poison, the men of science have almost universally treated its existence as a fable—a striking proof of the danger of setting up hypotheses in any department of science.

The toad occurs all over Great Britain, but has never been found in Ireland: it lives during the day under stones or in holes: when under flat stones it makes the smoothest possible cell or miniature cavern for its residence, the gallery leading thereto being often distinctly trodden, but never rendered beautifully smooth like their diurnal dormitory. I have found these cells four feet from the entrance of the gallery: where there are no stones or other convenient shelter, toads make long galleries in earth or clay, and sometimes even occupy the excavation of a sand martin, the entrance to which could only be reached by perseveringly climbing an almost perpendicular surface. From these cells the toads emerge at night to feed, always returning to their retreat long before day dawn. This habit must, I think, have led to the innumerable accounts we find in newspapers of toads in stone, accounts which it would be quite as unwise to deny as to believe. The utmost that naturalists can do with a view to stem what might be called the tide of public opinion which flows so strongly in favour of these supposed miracles, is to ask the narrators for such evidence as would stand the investigation of a judicial inquiry: to such an inquiry no truthful mind can object.

The toad either crawls with great deliberation or if pursued moves forward by a series of merry but rather awkward jumps, never leaping to any great distance like the frog. It is curious how authors copy from one another without deigning to think or observe for themselves. All our naturalists have copied the popular fallacy that toads crawl but do not leap.

In the spring, toads—at least those to which the duty of continuing their race is entrusted—resort to the water for the purpose of spawning: the spawn is deposited in long double series, like necklaces composed of minute black beads strung on a transparent thread: these I have often observed stretching like network among aquatic plants in April and May. The tadpoles are much smaller and darker coloured than those of the frog: they also remain in the water much later in the year.

The torpidity of the toad is a favourite subject with natural historians, but scarcely rests on that sure foundation which the practical naturalist requires. There is no doubt that toads have been found in a frozen state during winter, and therefore perfectly motionless, but there is no evidence that the identical individuals so found have returned to a state of life and activity; again, toads have often been found, and indeed may commonly be found, deep within their galleries in the severest frosts, but when exhumed nothing like torpidity has been observed; so that the evidence of a fact so universally asserted seems very insufficient.

In 'Hardwicke's Science Gossip,' a work in which a world of Natural History information has been published, there are some interesting accounts of toads, with one of which I shall conclude my history of the species. It is from the pen of Mr. Holland:—

"My toads, two in number, had lived for a year or two in a hot-house which was devoted to the growth of pineapples. They were, I think, first purposely placed there by the gardener, who found them very useful in destroying insects. I used very frequently to visit the place and amuse myself with feeding the toads with worms, and with watching their habits. The heat of the place, which was considerable, did not seem to inconvenience them in the least, for they were remarkably active, and of a large size; but at the same time they seemed greatly to enjoy the artificial showers when the plants were syringed, and would come out from their hiding places to be rained upon. They usually remained amongst the pineapple plants, which grew on a bed raised some four feet from the ground where they sat under the long leaves; but when the place was watered they would not unfrequently jump down and lie upon the cool wet tiles of the floor, spreading themselves out as flat as possible: how they climbed up to the pine-bed again I cannot say, for I never saw them do it. They evinced very little shyness, taking worms readily when offered to them. When feeding, their actions were very curious: upon placing a worm about three inches from a toad, it would instantly fix its attention upon it: then its whole appearance was changed; instead of the dull, lethargic-looking animal that the toad generally appears, it was all vivacity; the body was instantly thrown somewhat back, and the head bent a little downwards, its bright eye riveted upon its prey; and though the toad was perfectly still as long as the worm remained motionless or nearly so, yet its attitude and its eager gaze were full of life and animation. Directly the worm made any active movement the toad would dart forward, open its mouth from ear to ear, and seize it, generally about the middle. A curious scene now took place; mouth and feet went to work in good earnest, the worm was gulped down by a series of spasmodic jerks, trying to make its escape every time the mouth was opened, the toad thrusting it back all the time, and forcing it down its throat by the aid of its fore feet. Altogether it was rather a disgusting sight, and gave one the idea that the toad is an uncommonly greedy animal. Having got the worm down was by no means a reason that it would stay there, for I have sometimes seen a worm rather larger than usual make its way up again; however, the feet would immediately go to work a second time, and the toad would at length remain the undisputed possessor of its own dinner. Frequently I used to cheat the toads by moving a small twig before them: they would seize it directly, imagining it to be a worm, and would regard it with stupid astonishment when they discovered their mistake. I never had the good fortune to see my friends take beetles or other small prey; but these, the gardener told me, were never seized with the mouth, but were caught with unerring aim upon the points of the long tongue."

EDWARD NEWMAN.

Lacerta agilis oviparous.—On the 30th of May, 1865, I captured a fine pregnant female of Lacerta agilis. Wishing to learn something of its habits I carried it home in a chip-box, and placed it in a fern-case which was well stocked with ferns: for the first two days it was very shy and refused all food, but on the third, on my offering it a living fly on the point of a long needle, I was pleased to find that hunger had overcome its natural timidity. Making a sudden dart at its victim, it seized it by the most accessible part and held it until it had ceased struggling. It then rubbed off the legs and wings against the ground, and after seizing it again by the head, swallowed it whole: this was repeated with eight common house-flies. It then commenced drinking water from a shell, lapping like a dog, and seemed to enjoy this much: when the shell was empty it licked the moisture from the fern fronds. When captured it was six inches long, light sandy brown in colour with darker markings. In a few days the skin assumed a dry shrivelled appearance and commenced separating at the mouth, from which it was gradually forced back by the creature pressing against the stipes of the ferns, the skin being turned inside out during the operation. From the vent to the extremity of the tail it came off in separate scales. After the change the colours were much darker, nearly as dark as the peat mould. On the 22nd of June she dropped seven eggs on the surface of the mould in the sunshine, which were in colour invisible-green above, lighter beneath, round, compressed, and five lines over. The egg-coverings were thin transparent membranes, and through them the young lizards could be seen curled up with their tails across their necks, and surrounded by a milky-looking fluid. The next morning these emerged, and after drying themselves in the sun, commenced running about in search of food. For the first two days they were of a uniform invisible-green above, a lighter green beneath; but on the third day they became freckled on the back with numerous lighter-coloured spots, which became more distinct as they grew older. There was not, so far as I could see, the least sympathy between the parent lizard and her young; in fact, she did not take the slightest notice of them from the time they were born until their death, which happened at the end of August, during their first change of skin. The parent became very tame, and would take live food from the fingers or lie curled up in the hand, apparently enjoying the warmth. On the 29th of September she ceased feeding, and remained in a torpid state up to the beginning of March, 1866. During the winter she lay on the surface of the mould covered over with a few leaves, the eyes being closed and the tail laid over the neck. On very cold days the body was quite rigid and to all appearance dead, but the warmth of the hand would restore animation for a short time: she commenced feeding again in March, but only lived to the end of that month.

On the 7th of July, 1866, I captured another female of Lacerta agilis, which again dropped *seven* eggs on the 22nd of that month. The young emerged from their shells in half an hour, lived until September, and then died in their first moult: I have several times since endeavoured to rear these creatures for the purpose, if possible, of ascertaining when copulation takes place, whether before or after hybernation, and how long the female carries her young. In my next attempt I failed through unfortunately introducing two males, which fought so desperately that each died of wounds inflicted by the other. In my last, I lost the female from the bite of a spider (*Epeira diadema*): it was an immense creature, and I had only introduced it out of curiosity to see if the lizard would attack one so large. She did seize it, but it immediately turned, and bit her in the lip; and, although she at once shook it off, she gradually became paralyzed, and died twenty-four hours after receiving the wound.—*Henry Moncreaff; Southsea, May* 2, 1869.

Variety of Anguis fragilis.—Having in my possession a full-grown blindworm (*Anguis fragilis*) of an unusually dark colour, with two irregular bands of bright blue spots running along the whole length of its sides, and having a broader head than is common to this animal, I should be much obliged if the Editor or any reader of the 'Zoologist' could inform me if this is owing to old age, or is indicative of a variety.—*A. de Hügel; Florian, Torquay, June* 6, 1869.

Sturgeons in the Severn.—Sturgeons have visited us early this season: about a fortnight since two large ones were caught by the fishermen in the neighbourhood of Oldbury-upon-Severn, and in accordance with custom they were forwarded to the Lord of the Manor of Thornbury; and on Saturday last one weighing nearly 130 lbs. was caught, by a fisherman, near Woolaston Station, in the river Severn. I saw the fish soon after it was taken out of the water: it was in very fine condition, and I much enjoyed part of it, which I purchased.—*Edward Sweetapple; Cone Mill, Lydney, May* 6, 1869.

A Monster Salmon.—This village is proverbially noted for the size and excellence of its salmon, but for this season at present, and for a half century of past ones, the palm must certainly be awarded to Mr. George Highnam, who caught on Friday last a monster salmon of the following extraordinary dimensions:—Length, 4 feet 8 inches; girth 2 feet ¾ inch; weight, 43 lbs. The fish was very bright in appearance, and capitally grown. Its quality we had not the opportunity of testing, but doubtless it was as rich as it was gigantic.—*Oldbury-on-Severn; May* 28, 1869.

Land and Fresh Water Mollusks, collected in the immediate vicinity of Henley-upon-Thames during the Season of 1868.—I have arranged the shells according to the systematic list in Lovell Reeve's 'Manual':—

Limax agrestis (Field Slug). Common.
Limax flavus (Yellow Slug). Common.
Limax cinereus (Ash Slug). Common.
Succinea elegans (Elegant Amber Shell). Not rare.

Zonites nitidans (Shining Zonite). Common.
Zonites crystallinus (Crystalline Zonite). Not rare.
Helix aspersa (Garden Snail). Common.
Helix Arbustorum (Shrub Snail). Common.
Helix nemoralis (Wood Snail). Common.
Helix hortensis, considered by Lovell Reeve a variety of H. nemoralis (Wood Snail). Common.
Helix cantiana (Kentish Snail). Common.
Helix virgata (Striped Snail). Common.
Helix fasciolata (Finely-banded Snail). Not rare.
Helix Ericetorum (Heath Snail). Common.
Helix lapicida (Variegated Rock Snail). Not rare.
Helix lapicida, *Var.* albella of Fleming. (White Rock Snail). Rare.
Helix rufescens (Rufous Snail). Common.
Helix rotundata (Rounded Snail). Common.
Bulimus montanus (Mountain Bulimus). Rather scarce.
Bulimus obscurus (Concealed Bulimus). Not rare.
Clausilia laminata (Laminated Clausilia). Not common.
Clausilia biplicata (Two-plaited Clausilia). Rare.
Clausilia nigricans (Reversed Clausilia). Common.
Pupa secale (Rye-grain Pupa). Not rare.
Pupa Muscorum (Moss-dwelling Pupa). Not rare.
Planorbis corneus (Horny Planorbis). Common.
Planorbis albus (White Planorbis). Common.
Planorbis carinatus (Keeled Planorbis). Not rare.
Planorbis complanatus (Smooth Planorbis). Common.
Planorbis Vortex (Whorl Planorbis). Not rare.
Planorbis Spirorbis (Rose Planorbis). Not rare.
Planorbis contortus (Twisted Planorbis). Rare.
Lymnæa peregra (Wandering Mud Shell). Common.
Lymnæa peregra, *Var.* ovata of M. Tandon, Not rare.
Lymnæa auricularia (Ear-shaped Mud Shell). Not rare.
Lymnæa stagnalis (Lake Mud Shell). Common.
Lymnæa palustris (Marsh Mud Shell). Not rare.
Ancylus fluviatilis (River Limpet). Not rare.
Cyclostoma elegans (Elegant Cyclostoma). Common.
Bythinia tentaculata (Tentacled Bithinia). Common.
Bythinia Leachii (Leach's Bythinia). Not so common.
Paludina vivipara (Marsh Shell). Common.
Paludina vivipara, *Var.* unicolor of Jeffries. Rare.
Paludina Listeri (Covered Paludina). Rare.
Neritina fluviatilis (River Neritina). Not rare.
Anodon cygneus (Swan Mussel). Common.
Anodon cygneus, *Var.* anatinus. Not rare.
Unio Pictorum (Painter's Mussel). Common.
Pisidium amnicum (River Pisidium). Not rare.
Cyclas rivicola (River Cyclas). Common.

Cyclas cornea (Horny Cyclas). Common.
Cyclas pallida (Oval Cyclas). Not Common.
Cyclas lacustris (Lake Cyclas). Not common.

In all, forty-nine species and four varieties. Besides the above, I collected specimens of the young of Paludina vivipara, Anodon cygneus, and Unio Pictorum. Taking the season all through, it was a very hot dry one, and not at all a favourable one, I should think, for mollusks.—*C. E. Stubbs; Henley-on-Thames, April* 12, 1869.

Persistence of the Scent of Aromia moschata.—Late in the summer of 1866 a lady, in one of her walks about here, met with a specimen of Aromia moschata, and, struck by its beauty, brought it to me to set it for her. A small phial with spirits of wine being close at hand, was the means of bringing the insect's life to a speedy end, and, if I remember rightly, the beetle was left a night in the phial. A few days ago the phial passed again through my hands, and I was struck by the concentrated perfume emanating from it. Every collector knows that this insect is a nosegay for a long time after death, but exact observations as to the duration of this quality seem to be wanting, as well as the knowledge of the real constituents of this volatile substance, which I was scarcely prepared to find holding its own so long a time, even in a preserving fluid.—*Albert Müller; Penge, S.E., May* 24, 1869.

A Hint respecting the Nematus-Gall of Rhododendron ferrugineum.—On the 30th of July, 1866, Mr. Stainton first met with this gall near Andermatt, in the Ursern Valley, and his courtesy enabled me soon afterwards to examine specimens and to offer a few particulars on the subject in the 'Zoologist,' (p. 1206, S.S.); but these specimens were too far decayed to give any clew to the insect. On the 23rd of June, 1868, and the days following, during a journey devoted almost entirely to the search after alpine galls, I had the pleasure of myself gathering plenty of these excrescences near the road above Hospenthal, in the same valley, at an altitude of about 4500 feet. The galls, looking with their glowingly red cheeks not unlike small sized whiteheart cherries of irregular shape, were most conspicuous amongst the sober dark green foliage of their foster-plants, which at that time only just began to expand their lovely blossoms. An examination of many specimens showed that at first they are filled with a spongy white substance, enveloping a solitary egg, and that subsequently, when this hatches, the larva begins to feed on the surrounding matter, thus gradually forming a chamber around itself. The location of the galls is either each separate upon a leaf or else in the centre of a top of a shoot, in which case the latter, instead of bringing forth its bunch of leaves or blossoms, produces a bundle of more or less crowded galls, *i. e.* converted leaves or blossoms. Taking into account all I have seen of this gall, I consider it to be the production of a sawfly, belonging probably to the genus Nematus; but although there is ample precedent for doing so, I abstain from burdening nomenclature with a new appellation,* which task I leave to the finder of the perfect insect, adding that it will probably occur in August or September, when sweeping the rhododendrons would probably lead to the desired result, for the attainment of which I appeal to all entomologists who may happen to be in the subalpine region at that time of the year.—*Albert Müller; Eaton Cottage, South Norwood, S.E., July* 8, 1869.

---

* Naturalists have over and over again bestowed specific names upon insects, of which only the galls or cases, &c., were known to them at the time they published their writings.

Aphides seen at Sea.—On Saturday morning, July 24th, during the Ocean Race from Lowestoft to Hull, our cutter, when five miles S.S.E. of the Newsand lightship, and about thirteen miles from the Lincolnshire coast, ran through numerous belts of gray water, varying from a few yards to some hundreds in breadth, and extending both to port and starboard as far as the eye could reach. On examining a bucket of this water I found the peculiar gray colour due to myriads of aphides, with green bodies and light fragile wings, and that it was the extended wings of these little insects that gave the thick pea-soup appearance to the water. The sea was at the time comparatively smooth, and within the gray belts the surface was constantly broken and furrowed by the noses and fins of mackerel and pollack sucking down the flies —*John Cordeaux; Great Cotes, Ulceby, Lincolnshire, July* 26, 1869.

Plague of Aphides.—With regard to the floating masses of dead aphides seen at sea on the morning of the 24th of July off the Lincolnshire coast, I have since ascertained that about the same date this insect-scourge attacked the peas and vetches in this district in such immense swarms as, had it not been for the advanced state of the crops, to threaten their entire destruction. Myriads are now knocked from the plants during the process of reaping and gathering; and so thickly, in some cases, is the ground covered that they may literally be gathered in handfulls. I well remember, many years since, the advent of an extraordinary flight of ladybirds in this district: as near as I recollect they did not extend far from the coast, but all along the Humber embankment, and some short distance inland, lay as thick as hailstones after a storm: the ground seemed everywhere strewn with the little creatures, and they might very well have been swept up into heaps: the stems of ragwort and hemlock were concealed, so thickly were they covered; and along rails and gate-posts they crawled by hundreds and thousands.—*Id.*

Aphides in Lincolnshire.—With reference to the plague of aphides, which at the present time are doing so much damage to the crops in this district, I may further remark that they have not altogether been permitted to devastate our pea and vetch crop unmolested: their enemies are both numerous and enterprising: first and foremost in the war of extermination comes the "many-wintered" rook and his family—at this season usually so destructive to the corn crop; but now his old bad habits seem forgotten, or at least for the time laid aside, for I now see daily, as I pass through the fields, hundreds of black heads peeping up from amongst the late-sown vetches—wide-awake and trustless of peaceful appearances, ever on the watch for the dreaded gun. It must be a new sensation to these poor rooks not to be fired into, or disturbed by noisy rattle; but I know full well they are now all honest workers, day by day, early and late, stripping the green fly from the young and tender shoots of the vetch; and so much do they relish their work, that hitherto it has not been necessary to protect the fast-ripening grain; I can find no stray heads scattered on bank or pasture. With the rooks are associated flocks of starlings, and all equally well employed. But these are not all: during the last few days another foe to the aphides has come into the field—less conspicuous, but not the less deadly. In each plot of peas or tares, crawling over every part of the plant, I now find astonishing numbers of the larvæ of the ladybird; in many cases averaging ten or twelve on each plant, and often four to five and upwards on a single pod. There are also many of the perfect insect, but the larvæ outnumber the parents as fifty to one. Thus do bird and insect combine to rid us of our foe; and, although the task seems almost hopeless and the victory doubtful, who can say that a check may not already have been given to this insect-scourge, and the decree gone forth—"Thus far shalt thou go, and no farther." —*John Cordeaux; August* 10, 1869.

A Swarm of Ladybirds.—On the 15th inst. this favourite little insect made its appearance in the streets and gardens of London in great numbers: in my neighbourhood they were very abundant, the juveniles being in active pursuit of them. I I observed a party of youngsters, who had converted a dry plug-hole into a sort of ladybird store: at the time I looked into it the plug-hole contained between three hundred and four hundred of the insects, the numbers being constantly augmented by the arrival every few minutes of a scout bringing fresh captives. On my way to London-bridge I must have seen thousands of the insects either on the wing, running about the roads, &c., or lying on the pavement crushed to death by the foot passengers: I believe they were all of one species, namely, Coccinella 7-punctata. On the following day, though not nearly so numerous, the street urchins were actively occupied in their collection: much to my amusement, I noticed one lad had armed himself with a yellow basin, into which he placed his captures, the said basin being enveloped in a red cotton pocket-handkerchief.—*Charles Healy; 74, Napier Street, Hoxton, August* 17, 1869.

Ornithological Notes from North Lincolnshire.

By John Cordeaux, Esq.

June and July, 1869.

Wheatear.—Considering how numerous this species always is on this coast in early April, it is somewhat surprising that so very few remain to breed: I am not aware of more than two pairs remaining for that purpose this season—one of these nesting amongst the rough-laid stones on the Humber bank, the other in a heap of heavy chalk-stones collected for the repair of the road. Am I correct in supposing the "sea-blue bird of March" of the Poet Laureate to be the male of this species? I know of no other bird answering the description, and "sea-blue" very truthfully represents the delicate bluish gray of the head and back of the male wheatear. I never see the little fellow flit past in the early spring without thinking of Tennyson's well-known lines—

> "When rosy plumelets tuft the larch,
> And rarely pipes the mounted thrush;
> Or underneath the barren bush
> Flits by the sea-blue bird of March."
> *In Memoriam.*

There has, I am aware, been much discussion as to what bird is intended: if not the wheatear, what is it?

Brownheaded Gull.—June 12. Already hundreds of this species, both old and young birds, have returned to the coast from the great gulleries of Twigmoor, near Brigg, Lincolnshire and Hornsea Mere, Yorkshire. There were also many young of the herring gull and the common species, with a few immature great blackbacked, on the "flats" by the 22nd; indeed, young gulls of all these species muster strong, and are unusually plentiful along the river. Either they have had a very favourable breeding season, or the "Bill" has already become effective in increasing the number of our sea-fowl. A man who lives close to the Humber says that there are now more young gulls on the "flats" than has been the case for very many years; and this is quite borne out by my own observation.

Lapwing.—June 12. I caught four young peewits this morning, evidently only a few hours out of the shell: in two of these little fellows the white ring round the neck was not nearly so distinct, and much duller—probably this difference is one of sex.

Whimbrel.—July 15. Whimbrel were passing over the house early this morning, flying south. This is a month earlier than I have observed them in previous years. I also heard their well-known note, when at sea off the Norfolk coast, near Cromer, on the morning of the 22nd; and on the 29th saw forty together in the Humber marshes.

Scoter.—Some flocks seen this morning off the Bull Light ship, Humber mouth.

Ringed Dotterel.—July 30. Seen in considerable flocks in the marshes.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
August 3, 1869.

Occurrences of the Crane in 1869. By J. H. GURNEY, jun., Esq.

THE Spring migration of 1869 having been marked by an unusual number of cranes, the Editor requested me to make a list of them.

About the 7th of May my father saw a crane at Mr. Ward's shop in Oxford Street, the property of Mr. Hume, who informed him that on the 2nd a labourer saw two cranes on a layer-field, near the border of the two adjoining parishes in which his estate lies, viz., West Somerton and Winterton: the man shot one, and the other escaped; the one shot was a young male. Mr. Stevenson, who dissected it, informs me that the stomach contained large sized pebbles, fragments of beetles' wing-cases, and fibrous matter not distinguishable. This bird was mentioned in the 'Field' newspaper by Mr. Stevenson and Mr. Ward.

On the 22nd of May I received a young male crane, which had been shot on the 17th at Fiddrington, near Tewkesbury. I have already mentioned this individual (S.S. 1803).

On the same day a female was shot in the marshes at Wareham. Mr. Hart, who has recorded this crane in the 'Zoologist,' found in its stomach a quantity of aquatic shell-fish.

On the 25th of May another was shot and winged in the salt-marshes at Thornham, near Lynn, as noticed by Mr. Stevenson in the 'Field' newspaper. Mr. S. thinks it was probably a young male.

On the 27th (as has been recorded by Dr. Saxby, S.S. 1763) a crane was killed on the moors near Uyeasound, in Shetland, by a boy, with a stone: it was also a young male. Another was believed to have made its escape.

On the 4th of June a young male crane was shot on the South Pickenham estate, in Norfolk; notice of which, as it appeared in the 'Lynn Advertiser' for June 12th, is copied into the 'Zoologist,' (S.S. 1803).

About this date two are mentioned by an anonymous writer in the 'Field,' as having been shot at Burnham, in Norfolk; but it has been suggested to me that one of these may have been the Pickenham specimen. Two others are said to have made their escape.

As late as the 20th of last month (July) another young male crane (but with the darker feathers of the adult plumage beginning to sprout in all directions) was killed on Hickham Moor, near Lincoln, by Mr. Shuttleworth. This one I purchased, and have skinned for my collection: it was a very heavy bird, and in active moult. Length, 3 feet 8 inches; expanse 7 feet.

J. H. GURNEY, jun.

August 2nd, 1869.

Wild Animals eating Porcupines.—With reference to Mr. Thompson's paper in the present number of the 'Zoologist,' I find that tigers and leopards are not the only wild animals which, much to their sorrow, indulge a taste for porcupine flesh. The same circumstance, on the authority of Captain Campbell Hardy, is related of the North

American fisher (*Mustela Pennantii*), the largest of the tree martens. He says, "The Indians all agree as to its alleged habit of attacking and killing the porcupine. 'An old Hunter,' informs me that it is a well-known fact that the fisher has been often—very often—trapped with its skin and flesh so filled with quills of this animal that it has been next to an impossibility to remove the felt from the carcase. * * * Mr. Andrew Downe, the well-known Nova Scotian practical naturalist, says he has often found porcupine quills in the fisher's stomach on skinning the animal."*—*John Cordeaux ; Great Cotes, Ulceby, Lincolnshire, August* 5, 1869.

Abnormal Dentition in the Rabbit.—A case somewhat, if not exactly, similar to that recorded by Baron A. de Hügel in this month's 'Zoologist,' with reference to the abnormal dentition in the rabbit, presented itself to me some time ago. On the 25th September, 1867, when cutting a field of corn, a rabbit was killed by the reaping machine, the teeth of which presented a remarkable appearance. The two large upper incisor teeth were bent round in contrary directions, not abruptly but gradually: each tooth formed nearly the same curve, which, if completed, would form a circle whose radius measured to the outside of the tooth would be about three-eighths of an inch; and, as the teeth were nearly semicircles, the distance from the extremities would be one and a half inch: such was the case. In the lower jaw there was only one tooth, not much longer than its normal size: there was a groove along each of the upper teeth, and the tooth opposite that in the lower jaw was a shade more sharply curved than that opposite the vacant space. I have not the skull in my possession now, as I unfortunately put it out on the top of the house to bleach, when some wandering hawk or owl spied it, I suppose: at any rate, I saw no more of my rabbit's cranium. Dallas, speaking in his 'Animal Kingdom' of the Rodentia, has the following: "And when one of the incisor teeth is broken away, the one opposite to it, being deprived of all check upon its growth, continues to increase in length like the tusk of an elephant: but as the form of the socket is the segment of a circle, the tooth is developed in a circular form, and may thus in time prevent the animal from taking any nourishment." P.S.—I should say the rabbit when killed was in a most emaciated condition.—*R. M. Barrington ; Fassaroe, Bray, August* 2, 1869.

Shore and Sea Birds.—On the 22nd of May I was walking on the shore here, and observing three waders at a short distance, I, by a little manœuvreing, succeeded in getting within shot and killed two of them: they proved to be a pair of sanderlings in summer plumage. I was wishful to obtain the other bird, but could not then accomplish my object, consequently I took the earliest opportunity which presented itself, which was on the 25th: on this occasion it was blowing a strong gale from the N.E., and being spring-tide very little of the shore was exposed; I therefore had less difficulty in approaching the following birds, which I succeeded in shooting, viz., a male sanderling, a male Kentish plover, and a male knot: these were feeding in company amongst the seaweed which had been left by the tide, and were in their full summer plumage. I saw another Kentish plover at the same time, but it eluded me: I however again went on the 28th, and, after a walk of about five miles, I had the good fortune to obtain a female Kentish plover, also a female sanderling. This Kentish plover I shot when flying along the edge of the water in company with some dunlins, one of which was killed at the same shot. I am not aware whether this is the first recorded instance of the Kentish plover being shot in Yorkshire, but it is the first I can hear of in this locality. I have since been down several times to the beach, but have not procured anything with the exception of a ringed plover and two or three dunlins, which are very common here. I had brought to me early last month, by T. Ling, of Flamborough (who is, I suppose, one of the greatest enemies our sea birds ever encounter), a male common buzzard and a male chough: these he had shot at Lundy Island, where he had been for the purpose of shooting kittiwakes and other gulls, for making into plumes, &c.; and he tells me that in two days, although a heavy sea was running, he succeeded in picking up to his own gun eight hundred of these birds. I think this alone is a strong argument in favour of the Sea Birds' Protection Bill, although Ling holds a different opinion, and does not see he is killing the goose that lays the golden egg.—*Thomas Boynton; Ulrome Grange, Lowthorpe, Hull, June* 14, 1869.

---

* 'Forest Life in Acadie,' p. 191.

Notes on Migratory Birds.—March 19. Brambling last seen.

April 10. Wheatear seen.

April 11. Saw swallows. Heard willow wren, chiffchaff, and yellow wagtail. Goldcrest last seen.

April 13. Cuckoo heard.

April 18. Heard sedge warbler and tree pipit, and saw sand martin.

April 22. Fieldfares last seen.

April 27. Heard common whitethroat.

April 29. Heard lesser whitethroat.

May 1. Heard corn crake. The corn crake arrived about the 26th of April.

May 2. Heard garden warbler, wood warbler, grasshopper warbler, redstart and whinchat. Common whitethroats increasing. Swallows not numerous. Blackcap, swift, and house martin not yet seen.

Nearly all the Spring migrants have appeared earlier this year than usual. My last year's dates will be found in S.S. 1291. The cuckoo has seldom been heard in this locality so soon. A pair of swallows came to a shed here, in which they nest annually: the male on April 26th, the female May 1st: they are now building, May 15th. I should be very glad to ascertain, through the columns of the 'Zoologist,' how the swallow tribe occur this season in other parts of the country.—*George Roberts; Lofthouse, near Wakefield.*

Varieties of Birds' Eggs.—I have obtained this spring the following varieties of eggs, which I believe to be uncommon. The first is a nest of pale green redbreast's eggs, some of which are unspotted and some have a few pale reddish specks at the larger end; the second, some pale blue missel thrush's; and the third a nest of pure white house sparrow's eggs. I may add that all were taken in the vicinity of Brighton. —*W. W. Verner, jun.; 2, Victoria Terrace, Brighton.*

Position of Birds in Sleep.—Mr. Dix remarks that four chaffinches were brought to him dead—"all of them had their heads *under their wings*, as though they died asleep" (S.S. 1674); but it is a mistake to suppose that birds sleep thus: they thrust the beak and head into the scapular feathers above the wings, and not under them.

For confirmation of this, see Mr. Cordeaux's observations on the wigeon (S.S. 1666). —*J. H. Gurney, jun.; Bank, Darlington.*

Ornithological Notes from South Devon.—In continuation of the ornithological notes from South Devon (S.S. 1720) in the June number of the Zoologist,' may I add a few of my own made in the same locality during the months of March and April: as they add a few arrivals of summer migrants to the list there given, they may be of interest to some of your readers. I did not notice any arrivals that struck me as especially early,—not earlier, indeed, than I have done here inland in Somersetshire. My first note was April 7th: saw a good many wheatears on the Den at Teignmouth; these remained only for a few days, and then departed, I suppose, for the Dartmoor Hills, for, on a ride to Hey Torr (one of those hills) on the 10th, I found wheatears there in considerable numbers. I saw the first swallow on the 9th of April near Topsham, on the Exe. On April the 10th I saw several more at Teignmouth; also a redstart, a hen bird; and heard the chiffchaff for the first time. The summer snipe or common sandpiper I did not see till the 14th of April: soon after this they became pretty common, both on the coast and up the river; first heard the cuckoo on the same day. First saw swifts on the 27th of April, near a village called Boney Tracey, between Teignmouth and the Dartmoor Hills. Up to the last day of April, when I left Teignmouth, great northern and redthroated divers were still tolerably numerous—nearly as much so as in the winter: one redthroated diver I shot on the 3rd of April was in a state of change of plumage—the gray feathers on the sides of the face and throat were rapidly supplanting the white, as were the red feathers on the fore part of the throat; this change appeared to be taking place partly by moult and partly by change of colour in the feathers themselves. A cormorant, shot on the 23rd of March, had quite assumed its summer plumage; most of the others I saw about were apparently in a state of change, the white spots on the thighs not being nearly so conspicuous. Common scoters were numerous at sea till quite up to the time of my leaving Teignmouth, as I saw several the day before I left.—*Cecil Smith.*

Our Feathered Friends.—The usefulness of small birds as destroyers of insects is thoroughly recognised by the Saxon Government, as is shown by a curious scene witnessed last week on the market-place at Dresden. A body of police suddenly made their appearance, and, without any previous warning, seized all the cages containing singing birds exposed for sale, and released their inmates. A decree has also been issued, forbidding, under penalty of a fine, the killing or trapping of these useful songsters, and containing especially severe regulations with regard to birdnesting.

[This is a step in the right direction, but there should be stringent laws to protect gardeners and farmers from their own suicidal persecution of these "feathered friends." —*E. Newman.*]

Effect of Cold on Birds.—The chilling effects of the north-easterly winds on Thursday and Friday last seem to have had a fatal influence on our Hirundines, for many, both martins and chimney swallows, were found dying and dead on those days: this did not appear to have been caused by hunger, for some of them were in good condition: previously to this we had few of either species. I could not detect any parasitical vermin on any of them. Another singular event occurred on those days: my poultry yard suffered much from the depredations of rooks (not carrion crows nor jackdaws), many of which were detected in carrying off young chickens soon after they were hatched. I thought both these circumstances were worthy of notice, and I shall be obliged by your inserting them in the 'Zoologist.'—*Oswald Mosley; Rolleston Hall, Burton-on-Trent, May* 31, 1869.

Ornithological Notes from South Devon.—A fine male peregrine, also a female, were caught in a gin in this neighbourhood; the former on the 27th of May, the latter on the 3rd of June. Another not fully-fledged female of this species was shot near Watcombe, Torquay: a second young bird was seen at the same time. There is an eyrie near that place in the cliff, to which the above-mentioned birds most likely belonged, and it is said to be annually resorted to by a pair of these birds: there is also a peregrine's eyrie near Dartmouth, and another at Start Point.

Ravens. These birds have built in the cliffs at Watcombe from time immemorial: their nests are placed about half way up the cliff, and are difficult of access, although they and their contents are easily perceptible from the top.

Razorbill. A razorbill, still in the downy plumage, was shot in Torbay on the 7th of July: this fact would seem to prove Torbay (or rather the cliffs) to be a breeding place of this bird, although I have only received a negative answer to my inquiries from natives well acquainted with the Ornithology of this place and neighbourhood.

Glaucous Gull. One of these birds was shot last winter (January, 1869) in Torbay, as also another in the winter of 1867. Both these gulls were in the mottled, immature plumage: although this record of their occurrence is very tardy, they are birds of sufficient rarity to be worth even so late a notice.—*A de Hüjel; Florian, Torquay, July* 16, 1869.

The Peregrine Falcon breeding in Lancashire.—I knew by repute that a pair of peregrines reared a nest of young in the Spring of 1868, on a rocky cliff beyond Hawkshead, and this year they had four young ones in the same place, one of which incautiously let its wing hang over the edge of the ledge it was upon, and a shot pinioned it, so that as it attempted to fly it came to the ground and was secured, and is now in my aviary a tame and magnificent bird: the other three were shot by "a keeper." The old birds are still at large.—*C. S. Gregson; Fletcher Grove, Stanley, July* 31, 1869.

Owl on Bishopsgate Church.—A few evenings ago, when walking near Bishopsgate Church about 7 P.M., I saw a white owl (*Strix flammea*), which, after hovering for a short time over the roof, alighted thereon: its appearance caused quite a commotion amongst its observers, many of whom evidently regarded it as a *rara avis.* Some persons whistled violently, and others hooted at it, expecting probably to frighten it away, but it walked about very deliberately, and seemed so much inclined to stay awhile that I was compelled to walk on without noticing its departure: a church mouse or two would doubtless have been very acceptable to it.—*H. Bloomfield, July* 22, 1869.

Missel Thrush.—The following observations may perhaps be worthy of record:—In April last, about the middle of the month, a pair of missel thrushes commenced building in a large oak in a garden at Tottenham. On the 16th April I observed one of these thrushes endeavouring to carry up to its nest a piece of white paper as large as half a sheet of full-sized note paper; but the wind was high at the time, and interfered with the bird's efforts, which, after repeated attempts, it at length abandoned. After the hen bird had commenced incubation the male became very noisy and pugnacious, driving off every other bird which settled on the oak in which the thrushes had built. On the 3rd May the male missel thrush disappeared, having probably been shot or captured by a bird-catcher. On the morning of the 5th or 6th May, the hen missel thrush (who had continued her incubation notwithstanding the loss of her partner) was observed in company with a song thrush on an adjacent grass-plot: they were subsequently frequently observed to consort together whilst the missel thrush was bringing up her young: and once the song thrush was observed to fly into the oak containing the missel thrush's nest, with food in its bill. After the young missel thrushes had begun to fly, their mother and the song thrush were still frequently observed in company, and, as late as the 9th of June, I carefully watched through a glass the old missel thrush, two young missel thrushes and the song thrush, all sitting together within a yard of each other on some iron rails which divided the garden in which the nest was situate, from an adjacent field.—*J. H. Gurney; July* 16, 1869.

Late Singing of the Nightingale and the Cuckoo.—Rather an unusual thing has occurred in my garden this week, viz., a nightingale sings every morning about eight o'clock for half an hour or so, in a low irregular way—sometimes, however, breaking out in a good jug-jug-jug: it is, I should think, a bird of the year, judging from the time and manner of singing. The cuckoo sang here till the 7th ult.—four days late according to the old folks, who vow he never sings later than the 3rd of July.—*W. Farren; Rose Crescent, Cambridge, August* 7, 1869.

Number of Eggs laid by the Dartford Warbler.—I see in your number for this month a notice from a correspondent that a Dartford warbler's nest, with five eggs, has been taken near Brighton, and that an opinion exists with some that such never is the case. I have had, in the last few years, nearly sixty nests of this species: in four cases there were five eggs in a nest—four eggs certainly, as far as my experience goes, is the rule—but in eleven cases there were but three: of course it is difficult to say that there might not have been more laid if the nests had not been taken; but I have had at least one nest with only three eggs, and those hard set.—*Alfred Crowley; Bramley Oaks, Croydon, August* 19, 1869.

Rare Variety of the Great Tit.—I was down at the New Forest for a few days lately, and found in a keeper's possession, stuffed and cased, a very rare variety of the great tit (*Parus major*): the parts that are yellow and green in the type are pale lemon-yellow; the rest of the plumage quite white; bill pale yellowish flesh.—*W. Farren.*

Ray's Wagtail at Scilly.—Large numbers of the yellow wagtail have frequented the Islands during the past week.

Variety of the Yellowhammer.—On the 23rd inst. I received, in the flesh, a pale variety of the yellowhammer, the whole surface of its plumage being of a pale sulphur-yellow, the upper parts tinged with a pale reddish brown; eyes pale brown. Female, and in good condition.—*T. E. Gunn; Norwich, June*, 1869.

Extraordinary Jackdaw's Nest.—During the present season a pair of jackdaws, taking a fancy to a loophole in the tower of Hillington Church, near Lynn, as a site for their nest, but finding nothing but the winding staircase within as a foundation, have been at the pains of building thereon—piling up sticks for the purpose to the height of about twelve feet, and in quantity about a cart-load: the work of collecting and building this quantity of material was accomplished in about three weeks: the structure is so substantial as to completely blockade the staircase against all comers. —*Id.*

Albino Sand Martin.—I should wish to record in your next number an occurrence which I should imagine by no means common. On the 21st inst. I shot a pure white sand martin (*H. riparia*) near Ennis Kerry, in this county: the bird was young, and probably had not left the nest more than a week: it was an albino in every respect, having pink eyes and being of a spotless white. Some one had fired at it before, as one of the legs was nearly off and the skin of the lower part of the abdomen much lacerated: it was a very conspicuous object, and was observed by many: had I not shot it, undoubtedly some one else would, and very likely some person who would not have taken the trouble to get it stuffed.—*R. M. Barrington; Fassaroe, Bray, July* 23, 1869.

Unusual Plumage of the Nightjar.—Last season I had the pleasure of examining an adult male of this species that had a blotch of white on the first four primaries in each wing, and an extra white-tipped feather on each side of the tail. This is the only instance that has come to my knowledge of the nightjar having this extra number of white spots. The bird is, I believe, still in the possession of the birdstuffer in whose shop I saw it.—*T. E. Gunn; June*, 1869.

Ash-coloured Woodpigeon.—During the latter part of February last, a woodpigeon with pale ash-coloured plumage was shot somewhere in this neighbourhood. The sex was not ascertained, but it was apparently a male.—*Id.*

Piebald Waterhen.—On the 9th of April last a female waterhen with a piebald head and neck was shot near this city.—*Id.*

Canada Geese at Yarmouth.—At noon on Sunday, the 13th June, a flock of wild geese were seen approaching from the northward, flying along the beach not more than twenty feet above the sands. The unusual occurrence at once attracted the attention of the crowds usually assembled near the jetty, who discharged a volley of stones at the new comers. Not relishing this sort of reception the geese made a slight *détour* seawards, passing within twenty yards of the end of the jetty, when they again made for the land, and flew in the direction of Mr. Cudder's house on the south beach, and having hovered over it a few seconds, they bore away for the marshes. The flock numbered fifteen, and were identified as the Canada or cravat geese.—*Id.*

Redbreasted Merganser.—On the 9th of April a pair of redbreasted mergansers (*M. serrator*), in adult plumage, were shot at Reedham.—*Id.*

Contents of the Stomach of a Redthroated Diver.—In dissecting an adult female bird of this species, shot on the 5th April on Hickling Broad, I found in its stomach four dace, varying from four to four and a half inches each in length, three perch, each three inches, and the mutilated remains of two gudgeons. The fish were swallowed entire after being smartly nipped: two of the perch were however so good in condition as to admit of being stuffed. I also found two long white worms, one of which I unfortunately broke; the perfect one measured 8½ inches in length, and 7-16ths of an inch in circumference: the worm is flat, with a slight groove or depression through the centre; the nose taper, but blunt. The bird was in rather thin condition, which suggested to me the appearance of worms; its plumage was in good order, having assumed the chestnut patch of its throat and slate-coloured head and neck, without the usual mixture of white feathers.—*Id., April*, 1869.

Spoonbill at Scilly.—At Trescoe Ponds, near the Lord Proprietor's residence, a spoonbill was observed to frequent the banks last month for a fortnight.

1 DE69

TO CORRESPONDENTS.

The following Papers still stand over:—Notes on the Zoology of Newfoundland, by Henry Reeks. Notes on Snake Poisons and their Reputed Remedies, by Charles Horne. Notes on the Habits of British Aphides, by Francis Walker. Collected Observations on British Reptiles (the common frog), by Edward Newman. *Also* short communications signed Egbert D. Hamel, Henry Hadfield, J. Watson, Cecil Smith, J. A. Clark, J. Edmund Harting, J. H. Gurney, jun. And the following Extracts: Fieldfares Nest at Alresford, Golden Oriole in Kent, Golden Oriole near Horsham, Painted Bunting in Oxfordshire, Serin Finch at Worthing, Eighteen species of Birds building simultaneously in one Garden, Rose-coloured Pastor in Somersetshire, A Baby Dove incubating, The plague of Sparrows, The plague of Mice.

SHORTLY TO BE SOLD, BY MR. J. C. STEVENS,

A COLLECTION OF LEPIDOPTERA; containing many rare INSECTS. Among these are Lathonia, Acis, C. Dispar, Galii, Lineata, Celerio, Scoliæformis, Asiliformis, Pulchella, Obfuscata, Strigilata, Lapidata, Pusaria, (variety), Tæniata, Consignata, Nivearia, Togata, Bicolor, Alni, Bicuspis, Strigosa, Musculosa, Cannæ, Leucophæa, Abjecta, Subsequa, Erythrocephala, Subrosea, Cæsia, Capsophila, Conformis, Peltigera, Armigera, Sulphuralis, Orichalcea and others.

The Collection is the property of W. Oxenden Hammond, Esq., St. Alban's Court, Wingham, Kent, a well-known Entomologist; and a history of most of these Insects will be given at the Sale.

EDWARD NEWMAN'S ILLUSTRATED NATURAL HISTORY of BRITISH MOTHS.

The entire Work is published, as already advertised, at Twenty Shillings; in a handsome cloth binding. It contains life-size and most accurate figures of Seven Hundred and Thirty Moths that have been discovered in Britain.

EDWARD NEWMAN, 9, Devonshire Street, Bishopsgate.

PROFESSOR NEWTON'S SUGGESTIONS FOR FORMING COLLECTIONS OF BIRDS' EGGS. Price Sevenpence, post free.

⁂ This Work contains detailed directions for egg-blowing, especially those that have been hard sat on, and figures of the instruments to be used.

SIMPKIN, MARSHALL & Co., Stationer's Hall Court.

On the 1st of every Month, price Sixpence,

THE ENTOMOLOGIST: a medium of communication and exchange among Collectors of Insects.

SIMPKIN, MARSHALL & Co., Stationer's Hall Court.

BOTANICAL DRYING PAPER for drying Flowering Plants, Ferns and Sea-weeds for the Herbarium: it preserves form and colour in the best possible manner, and has the peculiar advantage of seldom, if ever, requiring a change of sheets whilst the plants are being dried. (This paper is too heavy to send by post.) The following are the sizes and prices:—

16 inches	by 10	when folded,	12s.	per Ream.
20	,, 12	,,	18s.	,,
20	,, 16	,,	24s.	,,

EDWARD NEWMAN, 9, Devonshire Street, Bishopsgate.

E. NEWMAN, PRINTER, 9, DEVONSHIRE STREET, BISHOPSGATE.

CONTENTS.

Jottings on Snakes; with an Appendix, &c., on Snake Poison and its Reputed Antidotes, *Charles Horne*, 1809.

Reptiles.—Collected Observations on British Reptiles, *Edward Newman*, 1826. Lacerta agilis oviparous, *Henry Moncreaff*, 1836. Variety of Anguis fragilis, *A. de Hügel*, 1836.

Fishes.—Sturgeons in the Severn, *Edward Sweetapple*, 1836. A Monster Salmon, 1836.

Mollusks.—Land and Fresh Water Mollusks, collected in the immediate vicinity of Henley-on-Thames during the Season of 1868, *C. E. Stubbs*, 1838.

Insects.—Persistence of the Scent of Aromia moschata, *Albert Müller*, 1836. A Hint respecting the Nematus-Gall of Rhododendron ferrugineum, *Id.*, 1839. Aphides seen at Sea; Plague of Aphides, *John Cordeaux*, 1839. Aphides in Lincolnshire, *Id.*, 1840. A Swarm of Ladybirds, *Charles Healy*, 1840.

Birds.—Ornithological Notes from North Lincolnshire, *John Cordeaux*, 1840. Occurrences of the Crane in 1869, *J. H. Gurney, jun.*, 1841.

Quadrupeds.—Wild Animals eating Porcupines, *John Cordeaux*, 1842. Abnormal Dentition in the Rabbit, *R. M. Barrington*, 1843.

Birds.—Shore and Sea Birds, *Thomas Boynton*, 1843. Notes on Migratory Birds, *George Roberts*, 1844. Varieties of Birds' Eggs, *W. W. Verner, jun.*, 1844. Position of Birds in Sleep, *J. H. Gurney, jun.*, 1844. Ornithological Notes from South Devon, *Cecil Smith*, 1845. Our Feathered Friends, 1845. Effect of Cold on Birds, *Sir Oswald Mosley, Bart.*, 1845. Ornithological Notes from South Devon, *A. de Hügel*, 1846. The Peregrine Falcon breeding in Lancashire, *C. S. Gregson*, 1846. Owl on Bishopsgate Church, *H. Bloomfield*, 1846. Missel Thrush, *J. H. Gurney*, 1847. Late Singing of the Nightingale and the Cuckoo, *W. Farren*, 1847. Number of Eggs laid by the Dartford Warbler, *Alfred Crowley*, 1847. Rare Variety of the Great Tit, *W. Farren*, 1847. Ray's Wagtail at Scilly, 1847. Variety of the Yellowhammer; Extraordinary Jackdaw's Nest, *T. E. Gunn* 1847. Albino Sand Martin, *R. M. Barrington*, 1847. Unusual Plumage of the Nightjar; Ash-coloured Woodpigeon; Piebald Waterhen; Canada Geese at Yarmouth; Redbreasted Merganser; Contents of the Stomach of a Redthroated Diver, *T. E. Gunn*, 1848. Spoonbill at Scilly, 1848.

E. NEWMAN, PRINTER, 9, DEVONSHIRE STREET, BISHOPSGATE.